

### **REMARKS/ARGUMENTS**

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action.

### **Rejections under 35 U.S.C. § 112**

Claims 36 and 37 stand rejected under 35 U.S.C. § 112, ¶ 2 as failing to particularly point out and distinctly claim the applicants' invention. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Examiner noted that the recitation "the exact letter phrases" in each of claims 36 and 37 lacks proper antecedent basis. These claims have been amended such that the various recitations include proper antecedent basis. Accordingly, the applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection.

### **Rejections under 35 U.S.C. § 103**

Claims 1-10, 12-20, 26-28 and 30-38 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,307,549 ("the King patent") in view of U.S. Patent No. 6,453,315 ("the Weissman patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Before addressing the patentability of the claimed invention, the applicants will first introduce the King and Weissman patents.

#### ***The King Patent***

The King patent concerns a reduced keyboard disambiguating system for use with a keyboard with keys that can have multiple interpretations. Consequently, keystrokes entered by a user are ambiguous. That is, due to the ambiguity of each keystroke, an entered keystroke sequence could match a number of words with the same number of letters. (See, e.g., the Abstract.)

In the system, stored vocabulary modules contain a library of objects that are each associated with a keystroke sequence, preferably in a tree data structure. Each object is also associated with a frequency of use. (See, e.g., the Abstract and column 11, lines 12-35.)

Then a user enters a sequence of keystrokes, objects within the vocabulary modules that match the keystroke sequence are identified and displayed to the user in a selection list. The objects are ordered within the selection list according to their frequency of use. The

first object in the selection list is a default selection, but the user may select other objects in the list. (See, e.g., the Abstract.) Objects that match the keystrokes are simultaneously and automatically presented to the user in a list as each keystroke is received. (See, e.g., column 3, lines 5-16.)

The King patent provides the following illustrative example:

[A]s shown in FIG. 1A, a keystroke sequence ADF, OLX, NBZ and EWV has been entered by a user. As keys are entered, a vocabulary module look-up is simultaneously performed to locate words that have matching keystroke sequences. The words identified from the vocabulary module are displayed to the user in the selection list 76. The words are sorted according to frequency of use, with the most commonly used word listed first. Using the example keystroke sequence, the words "done" and "doze" were identified from the vocabulary module as being the most probable words corresponding to the keystroke sequence. Of the two identified words, "done" is more frequently used than "doze," so it is listed first in the selection list. The first word is also taken as the default interpretation and provisionally posted as highlighted text at the insertion point 88.

Following entry of the keystroke sequence corresponding to the desired word, the user presses the select key 60. Pressing the select key draws a box around the first entry in the selection list 76 and redisplay the first entry at the insertion point 88 with a box around the entry. If the

first entry in the selection list is the desired interpretation of the keystroke sequence, the user continues to enter the next word using the data keys 56. The reduced keyboard disambiguating system interprets the start of the next word as an affirmation that the currently selected entry (in this case, the first entry in the selection list) is the desired entry.

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If the first entry in the selection list is not the desired interpretation of the keystroke sequence, the user may step through the items in the selection list by repeatedly pressing the select key 60. For each press of the select key, the next entry in the selection list is boxed, and a copy of the entry provisionally copied to the insertion point and boxed. Provisionally posting the next entry to the text region allows the user to maintain their attention on the text region without having to refer to the selection list. If the second entry in the selection list is the desired word, the user proceeds to enter the next word after two presses of the select key and the disambiguating system automatically posts the second entry to the text region as normal text. If the second entry is not the desired word, the user may examine the selection list and press the select key a desired number of times to select the desired entry before proceeding to enter the next word. When the end of the selection list is reached, additional presses of the select key causes the selection list to scroll and new entries to be added to the end of the selection list.

Those entries at the top of the selection list are removed from the list displayed to the user. The entry selected by multiple presses of the select key is automatically posted to the text region when the user presses any data key 56 to continue to enter text.

Column 7, line 30 through column 8, line 17.

The King patent also concerns two-stroke disambiguation (See, e.g., column 8, line 53 through column 9, line 11.) and multi-stroke interpretation (See, e.g., column 9, lines 12-46.).

The objects stored in the vocabulary modules may include numbers, letters, words, stems, phrases, or system macros (See, e.g., column 10, lines 38-64.) The King patent neither teaches, nor suggests, that the objects are Webpage documents or references to Webpage documents. Thus, the King patent concerns accepting keystroke entries, where each keystroke can have more than one meaning (e.g., due to a limited user input device), and determining words (or numbers, or letters, or stems, or phrases, or system macros).

### ***The Weissman Patent***

The Weissman patent concerns improving search, particularly in instances where a search engine is unable to properly discern what the user actually intends or means when a **particular keyword** is entered. (See, e.g., column 1, lines 13-53.) The Weissman patent discusses a preprocessing phase in which a "semantic space" is defined, and a retrieval phase in which a search query is processed using the semantic space. (See, e.g., Figure

1.) Generally, users are allowed to refine their searches to specific meanings of words, thereby enabling users to filter out undesired responses and get more precise and relevant search results. (See, e.g., column 2, lines 33-37.) Thus, for example, a user can specify that by "bulls", they mean cattle, not the Chicago basketball team. The user may also be presented with categories that are likely to be of interest (due to their being near each other in the semantic space). (See, e.g., column 2, lines 40-49.) Thus, for example, a result concerning "cows" might come up as a search result for the search term "bulls."

The semantic space includes various "meanings" and relationships (e.g., "kind of", "part of" and "bind") between those meanings. (See, e.g., column 3, lines 10-61.) The semantic space may also include "strengths" of these relationships. The meanings may be given a "commonness value" (See, e.g., column 3, line 62 through column 4, line 4.) and may be flagged or annotated with additional information. (See, e.g., column 4, lines 5-48.) Subject nodes (e.g., target documents) are positioned in the semantic space and scored for each meaning. (See, e.g., column 4, line 49 through column 7, line 7.)

The retrieval phase includes two sub-phases -- (1) analyzing the user's input so that desired user meanings may be identified, and (2) collecting nodes that have good scores for the desired meanings and ordering them based on a predicted relevance. (See, e.g., column 7, lines 14-22.)

The ambiguities addressed by the Weissman patent do not arise out of a limitation of a user input device.

Rather, these ambiguities arise from the fact that a particular word may have different meanings. That is, these ambiguities regarding a user's intention arise from limitations of languages and vocabularies.

***Claims 1-14 and 30-35***

Independent claims 1, 14, 30, 31 and 32 are not rendered obvious by the King and Weissman patents at least because one skilled in the art would not have been motivated to combine these patents as proposed by the Examiner. The Examiner concedes that the King patent does not teach effectively joining a number of sequences (of ambiguous information components) by a logical "OR" operation and providing the result as a search query input to a search engine. (See, e.g., Paper No. 20050412, page 4.) To compensate for this deficiency of the King patent, the Examiner relies on the Weissman patent. Specifically, the Examiner contends that (1) sections of the Weissman patent concerning searching for all implied or user specified "meanings", or searching for all non-required "preconceptions" (i.e., meanings known ahead of time to be of interest) teach logically ORing sequences, and (2) one skilled in the art would have been motivated to have modified the King patent in view of the Weissman patent:

because including each of the sequences effectively being joined by a logical "OR" operation request, as an input to a search engine ... would enable the system to receive [a] user's input (multiple keywords), search for entities containing any one of the entered keywords (logical

OR) and display the results to the user.

Paper No. 20040412, page 5. The applicants respectfully note that there is no suggestion in the art to modify the references as proposed by the Examiner. Absent such a suggestion, such a modification must be the result of impermissible hindsight in view of the applicants' invention, particularly in view of the different contexts of the King and Weissman patents. Indeed, as the applicants will demonstrate below, the proposed modification of the King patent would not help advance its end goal of determining a word that the user intended to input.

As discussed above, the King patent concerns accepting keystroke entries, where each keystroke can have more than one meaning (e.g., due to a limited user input device), and determining words (or numbers, letters, stems, phrases, or system macros). Thus, the King patent can be viewed as accepting ambiguous information components (keystrokes, each of which can represent multiple different numbers or letters) and providing a list of possible words. It seems that the Examiner is interpreting these words as the claimed "search results." On the other hand, the Weissman patent analyzes a user's input so that user intended meanings may be identified, collects nodes that have good scores for the intended meanings and orders the nodes based on a predicted relevance. The ambiguities addressed by the Weissman patent do not arise out of a limitation of a user input device. Rather, these ambiguities arise from the fact that a particular word



may have different meanings (e.g., the user input "bull" may mean cattle or the Chicago basketball team). That is, these ambiguities arise from limitations of languages and vocabularies.

As can be appreciated from the foregoing, the King and Weissman patents **concern different problems** (ambiguity as to user input due to ambiguous information components resulting from a limited user input device versus ambiguity as to the intended meaning of a user input resulting from limitations of languages and vocabularies). Further, the King and Weissman patents **have different end goals** (determining a word that the user intended to input versus determining documents relevant to what the user actually wants or intends). Given the different problems and different end goals addressed by the King and Weissman patents, one skilled in the art would not look to solutions offered in one to modify the other.

More importantly, the teachings of the Weissman patent would not help advance the end goal of the King patent; namely determining a word that the user intended to input. Specifically, in the King patent, the vocabulary module has a tree data structure in which each node of the tree represents a particular keystroke sequence. Thus, given an unambiguous keystroke sequence, the King patent can definitely find a single corresponding node. (See, e.g., Figure 4A and column 11, lines 12-35.) Each node includes a list of objects which is used to generate a selection list of candidate words. Objects of each node are stored according to their frequency of use. (See, e.g., column 13, lines 53-56.) There is no suggestion to logically OR all of the objects

since the objects are the end result sought. Furthermore, these resulting objects (words) are presented to the user "simultaneously and automatically" as each keystroke is received. (See, e.g., column 3, lines 5-11.) Referring for example, to Figure 11, if the upper-right key is pressed, words starting with N, B, or Z would be presented to the user in a selection list, ordered based on frequency of use. It would be absurd to logically OR all of these objects (words) and use them in some sort of search query since doing so would not help advance the end goal of the King patent of determining a word that the user intended to input.

The Examiner seems to be suggesting a two stage search -- first searching for various words corresponding to a user input with ambiguous information components, and second searching for various Webpages by logically ORing these words. This is not suggested by either of the references, and can only be gleaned from the applicants' disclosure. The lack of such a suggestion evidences the use of impermissible hindsight which is an improper basis for an obviousness rejection.

Accordingly, independent claims 1, 14, 30, 31 and 32 are not rendered obvious by the King and Weissman patents for at least the foregoing reason. Since claims 2-10, 12, 13, 15 and 33-35 depend from claim 1, these claims are similarly not rendered obvious by these patents.

In addition, independent claim 14 further recites an act of determining a subset of the plurality of sequences of less ambiguous information components by comparing the plurality of sequences of less ambiguous information components with terms used in past search queries stored

in a search query log. This further distinguishes claim 14 over the cited references.

The Examiner contends that the King patent teaches this act, citing column 2, line 60 through column 3, line 16 and column 22, lines 24-29, and noting that he interprets "log" to read on "frequency of use". (See Paper No. 20050412, page 9.) The cited portions merely discuss that the King patent orders words based on frequency of use, and that words are always presented in the same order. This neither teaches, nor suggests, determining a subset of the plurality of sequences of less ambiguous information components by comparing the plurality of sequences of less ambiguous information components with terms used in past search queries stored in a search query log. Further, the King patent defines "frequency of use" as the likelihood of using a given word within a representative corpus of use, which is proportional to the number of times that each word appears in the corpus. (See column 13, lines 61-65.) This has nothing to do with a search query log, and there is no suggestion that the corpus of use is a search query log. Therefore, claim 14 is not rendered obvious by the King and Weissman patents for at least this additional reason.

***Claims 16-20, 26-28 and 36-38***

Independent claims 16, 26 and 38 are not rendered obvious by the King and Weissman patents at least because one skilled in the art would not have been motivated to combine these references as proposed by the Examiner (as discussed above) and because these claims, as amended, recite that the search results include references to

Webpage documents. Specifically, as discussed above, the King patent presents to a user a selection list including objects that are associated with a particular sequence of keystrokes. These objects may be numbers, letters, words, stems, phrases, or system macros (See, e.g., column 10, lines 38-64.) The King patent neither teaches, nor suggests, that the objects are Webpage documents or references to Webpage documents. Although the Weissman patent concerns searching Webpages, the output of the King patent as modified by the Weissman patent as recommended by the Examiner would include a selection list of letters, words, stems, phrases or system macros, not references to Webpage documents.

Accordingly, independent claims 16, 26 and 38, as amended, are not rendered obvious by the King and Weissman patents for at least this additional reason. Since claims 17-20 depend from claim 16 and since claims 27, 28, 36 and 37 depend from claim 26, these claims are similarly not rendered obvious by the King and Weissman patents.

### **Conclusion**

In view of the foregoing amendments and remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.



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Respectfully submitted,

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**CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)**

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